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ABSTRACT

This report is a followup of an earlier study which attempted to assess the effectiveness of a Montessori program for preschool inner-city children. Data collected from the children over a 3-year followup period is analyzed, and the children's performance is compared with that of various control groups. There was some evidence that children in the Montessori preschool program had higher levels of intellectual functioning and school achievement which still persisted after several years. However, serious sampling problems limit the generality of the results. (Author/CS)

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FOLLOW-UP OF THE MONTESSORI PROGRAMME

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INTRODUCTION

In January of 1971 North York Montessori Nursery Schools began a preschool programme at Sackville Public School, one of Toronto's inner-city schools. Fifteen three and four-year-old children from the area (the first Montessori group) attended the programme for the six months from January to June. In September of 1971, fifteen children enrolled in a full year programme (second Montessori group), and the programme has since continued at this level. This year the preschool was moved from Sackville to Dundas Public School.

In addition to the preschool classes for children, there was an attempt to involve their mothers in the programme. In the first year mothers were encouraged to assist in the classroom one day a week, and there were occasional morning meetings for the mothers themselves as well as visits in their homes. It was hoped that this type of intervention would increase the effectiveness of the mothers as teachers of their own children and make them more aware of what the schools try to do. In later years the mothers' programme evolved to include regular weekly meetings as well as assisting in the classroom.

Because of the experimental nature of the programme, there was a great deal of concern with its effectiveness. As a direct result of this interest, a research study was initiated. This was a co-operative effort between the Research Department of the Board of Education for the City of Toronto and Professor Andrew Biemiller of the Institute of Child Study. In the first phase of this study, an attempt was made to determine the educational characteristics of Sackville children.

For this purpose data were collected from the first Montessori group. This has been published by the Research Department as report #100 (Preschool Education for Inner-City Children: Preliminary Results of an Experimental Montessori Programme). This report indicated that the Sackville children did not appear to be deficient in overall cognitive development. However, they seemed to have some learning deficiencies which related to their style of interacting with the school environment rather than to language or native intelligence per se.

The second phase of the study was to be a follow-up of the first and second Montessori groups in succeeding years in order to determine whether or not the programme had any long-term benefits. As discussed in report #100, the mothers of that first group of children were enthusiastic about the programme. In general, they felt that the children had improved in their attitudes toward school, general verbal skills, social behaviour, and independence.

However, it is not unusual for studies of remedial preschool programmes to find short-term gains (see report #100). It is unusual to find gains which persist for several years. The purpose of this report is to present data on long-term gains in three areas: cognitive development, school achievement, and parents' attitudes toward school.

Cognitive Development

In the first year of the programme, the first Montessori group was tested with the Stanford Binet, and found to have an average I.Q. of 98.5, with scores ranging from 88 to 115. This is essentially normal.

For a number of years, developmental tests have been given to Sackville children in senior kindergarten by the Student Services Department

as part of their Early Identification Project (EIDP). Data are available from the Draw-A-Person Test (DAP) and the Gessell Copy Forms on pre-Montessori Sackville children from 1969 to 1972. As Table 1 shows, the average score in senior kindergarten during these years ranged from 84 to 101. The average score over all four years was 94. The first Montessori group, when tested in senior kindergarten in 1973, attained an average score of 89. This is within the range of previous Sackville groups.

On the Gessell Copy Forms, however, there was evidence of gain as a result of the programme. On that test the average score for pre-Montessori groups ranged from 4.0 to 8.0 with an overall average of 5.5. The first Montessori group, however, averaged 8.7. This gain, no doubt, reflects the Montessori emphasis on perceptual training.

The second Montessori group was in senior kindergarten this year, and we had hoped to collect EIDP data on them as well in order to provide a second point of comparison. However, too few remained at Sackville School to make the comparison worthwhile.

TABLE 1

AVERAGE DRAW-A-PERSON AND GESSELL COPY FORMS SCORES
ON SUCCEEDING YEARS OF SACKVILLE SENIOR KINDERGARTEN CHILDREN

Test	Pre-Montessori Years 1969	1970	1971	1972	Pre-Montessori Average 1969-72	First Montessori Group 1973
Draw-A-Person	89	99	101	84	94	89
Gessell	4.1	8.0	5.1	4.9	5.5	8.7

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School Achievement

Seven of the fifteen children from the first Montessori group remained in Sackville in grade one in the Spring of 1974. On each of these children the teacher filled out the Teachers' Rating Questionnaire (TRQ). This is an instrument which has been developed and extensively tested by the Research Department (Wyman & Wright, 1974).

For this study, the teacher used the TRQ to compare the first Montessori group to other grade one children in her experience. The comparison was made in four areas of development: language, social, mental, and emotional. Growth in each area was assessed by a number of questions.

In its development of the TRQ, the Research Department collected data from almost 6000 children who were in grade one in 1962. All grade one children were tested except for those who had not attended senior kindergarten in Toronto the previous year; therefore, the data are quite representative of Toronto grade one children in general. A comparison was made of these scores with the scores of the first Montessori group.[1]

On all items but two, there was no difference between the two groups, This suggests that the programme has had some long-term success, since Sackville is an inner-city school, and its children might be expected to perform below average.

On two items in the Emotional section of the TRQ, the first Montessori group scored higher than the first grade population. One item (#30) refers to the child's emotional control. The second (#31)

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1 Comparisons were made by computing Z scores as $(M - \mu_1)/(\sigma_1/\sqrt{n})$, where M is the sample mean, μ_1 is the first grade population mean, σ_1 is the standard deviation of the population, and n is the sample size.

refers to freedom from tension or anxiety. The higher level of development in both of these areas might be explained by the Montessori child's greater experience with school and long-term familiarity with his classmates.

Parents' Attitudes Toward Education

A measure of the relative importance of various values to parents was developed and administered to the grade one Sackville children in 1971 and to the first Montessori group when they reached grade one in 1974.

This measure, called the Value Press Inventory, presents four situations that are relevant to each of five values. Of the four, two show the value being upheld, and two show it being violated. There is both a verbal description and a picture for each situation. Each of the twenty items is paired with a sampling of the other items. In each pairing the child reports which situation would make his parents more happy (or sad). There are a total of forty pairings. After all pairs have been presented, the relative importance of each value is scored by counting the number of times it was chosen over other values with which it was paired.

The five values are: helping others, school achievement, school behaviour (i.e. "being good"), socializing, and intellectual striving. An example of a positive pairing assessing the relative value of helping others versus school achievement is as follows:

> This boy (girl) helped his (her) mother around this house.
>
> This boy (girl) brought some work home from school that was perfect.
>
> Which boy (girl) made his (her) mother the happiest?

An example of a negative pairing of two other values, social versus intellectual striving, is:

This boy (girl) called other children names.

This boy (girl) made a mistake in telling time.

Which boy (girl) made his (her) mother the saddest?

The extent to which this type of instrument truly assesses the values of parents as opposed to the values of the child is unknown. What is important for this study is that it measures the child's perception of the values operative in his home. Changes in this area would indicate that the programme was successful regardless of whether that success had been achieved via the parents or the child.

Results of the test show that the relative importance of the values was as follows: helping others, school achievement, school behaviour, socializing, and intellectual striving. This was true for both the 1971 grade one class and the first Montessori group when they were in grade one. Thus, there is no indication of a change in values as a result of the Montessori programme. We might have hoped for an increased valuation of school achievement and, more importantly, intellectual striving. However, it must be admitted that the Value Press Inventory is a limited and rather crude measure. It is possible that true differences did occur, but did not register on this instrument. It is also possible that the programme was truly not successful in this area, particularly since it was not possible to involve the mothers to the extent that had been hoped.

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CONCLUSIONS

There is some evidence that the Montessori preschool programme resulted in higher levels of intellectual functioning and school achievement which still persisted after several years. Compared with previous years of Sackville senior kindergarten children, the first group of Montessori children scored higher on the Gessell Copy Forms, a commonly used test of cognitive development. In grade one, the Montessori children were rated by their teacher as performing at as high or at a higher level than the first grade population as a whole. This is encouraging since Sackville is an inner-city school.

However, these positive conclusions must be tempered by several considerations. First of all, this was a very limited study with a small group of children. An I.Q. test done in the Montessori year showed that the group had average intelligence. We do not know if they were representative of the general Sackville or inner-city population.

Second, the Montessori programme at Sackville was not an isolated experience for these children, but rather was well integrated with their subsequent school programme. The Montessori teacher and the regular staff of the school worked very closely together. The Montessori teacher was well aware of the problems which the staff perceived the children to have and of the regular programme which they would be entering. Likewise the regular staff was intimately acquainted with the Montessori programme and the progress the children had made there. Other studies of remedial programmes have underscored the importance of continual follow-through (e.g. Love and Stallings, 1970). It would be inappropriate to generalize

these results to self-contained preschool experiences which do not mesh with the child's later education.

Finally, it is difficult to say how general the benefits of the programme were. It is the general finding that preschool programmes are successful in the areas which they emphasize. Programmes emphasizing social and emotional growth produce children who are more mature. Programmes emphasizing academic skills are effective in giving children an advantage in specific school subjects (see Miezitis, 1971).

In [illegible] study the Montessori children scored higher than would have been expected on the Gessell Copy Forms, but perceptual training is a particular emphasis of Montessori. It has not been unequivocally proven that success in this area relates to general academic achievement later on. In terms of general performance in grade one, the Montessori children scored highest in emotional control and freedom from anxiety, growth which might simply be explained by the children's longer term familiarity with the school and their classmates.

The real issue in preschool education is no longer whether children can be advanced, but in what areas advancement is likely to have the longest term effect. Research in this area has not been of sufficient duration to answer this question. What is needed are studies which follow children to the end of their school experience and assess the effectiveness of the complete educational package which they have received.

A few relatively long term (i.e. 2 or 3 yrs.) follow-up studies have been done. It must be said that the evidence from these studies suggests that Montessori may be more successful than other programmes in producing gains which are long-term and which do generalize to other areas of schooling.

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